

**ABSTRACT OF THE DISCLOSURE**

The invention relates to a device that comprises at least one absorber, at least one cold separator from which is extracted a gaseous phase that feeds the absorber, at least one recycling to said cold separator of at least a portion of the liquid effluent that is obtained from the absorber and is mixed with the feedstock, at least one means for cooling said recycling, at least one means for recovering a light hydrocarbon-enriched liquid fraction that is obtained from said cold separator and at least one means for evacuating gases from the absorber. The invention also relates to a process for a hydrogen-rich gas or a process for recovery of a hydrocarbon-enriched liquid that uses said device.

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